



Great Blue Heron

NISQUALLY REACH AQUATIC RESERVE POTENTIAL SCIENCE PROJECTS OVERVIEW

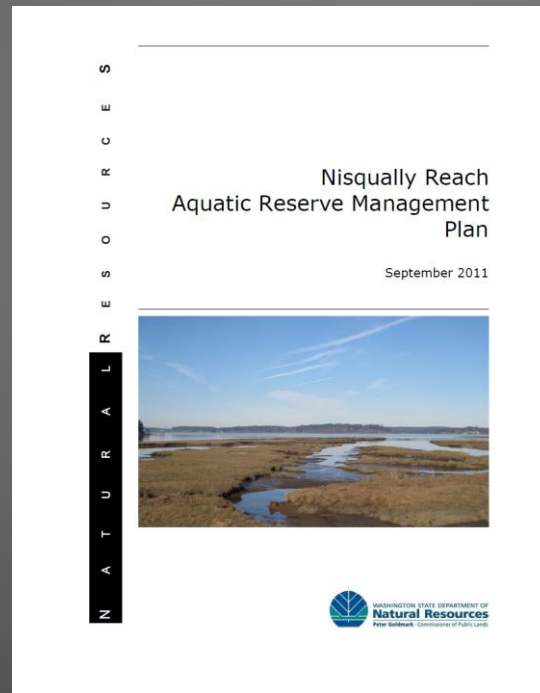
Citizen Stewardship Committee
Meeting

November 13, 2012

CRITERIA, TO KEEP IN MIND:

1. **High value project** for the reserve's ecology
2. **High interest** to committee, so that there will be enough enthusiasm to generate leads and volunteers (and at least one committee member champion)
3. **Low cost**
4. Able to be **completed by December 2013** to a level that is satisfactory to the committee
5. **Meaningful and engaging** so that it will attract volunteers

Mapping projects

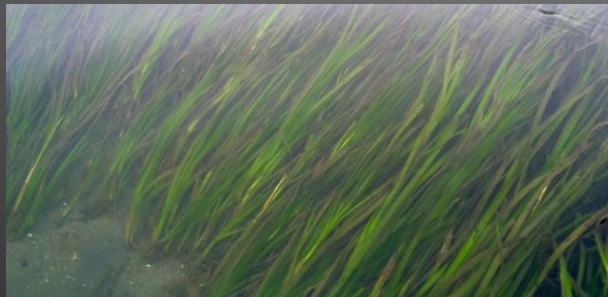


EELGRASS AND KELP MAPPING

What: Using a boat, map the location and density of eelgrass and native kelp throughout the reserve.

Pro:

- Key ecological feature
- Baseline not known
- Fits into bigger Puget Sound study
- Is a Puget Sound target and a Reserve conservation target
- DNR will process data



Challenges:

- Need a motor boat with A-frame
- Need to borrow equipment: towfish, laser camera, trolling motor, computer and GIS navigation
- Out for many hours doing a transect

SHORELINE CONDITIONS MAPPING

What: Mapping the current state of the shoreline condition along the edge of the reserve.

Pro:

- Important because of direct impacts on ecological health of reserve
- Baseline not known
- Fits into bigger Puget Sound study
- Is a Puget Sound target

Challenges:

- Need Boats or access to beach



SUB TIDAL BATHYMETRY AND BIOLOGICAL COMMUNITY MAPPING (DIVING)

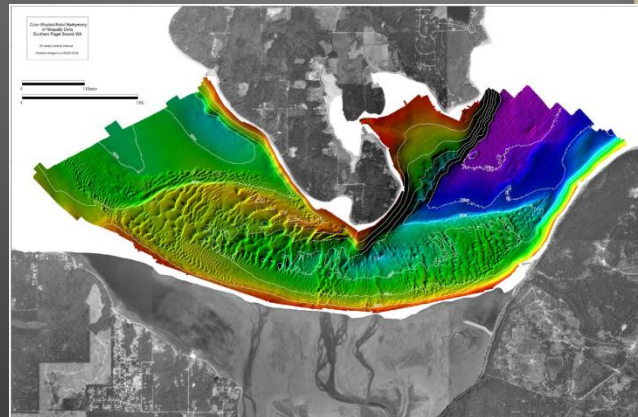
What: Do additional diving projects within the reserve aimed at classifying and mapping important sub tidal biological communities (including bathymetry)

Pro:

- Key ecological feature
- Baseline partially known
- Is already being done by Nature Center and agencies so this can be an add-on

Challenges:

- Need diver volunteers
- Need some equipment (minimal)
- Need more boats



DISTURBANCE MAPPING

What: Map (and monitor) activities that have the potential for disturbing sensitive foraging and nesting water birds and mammals.

Pro:

- Key ecological feature
- Baseline not known
- Can use protocol developed by Island Co MRC
- Puget Sound and Reserve conservation target

Challenges:

- Need some training
- Need minimal equipment



DERELICT GEAR MAPPING

What: Map derelict fishing gear using a weighted drop camera from a boat (in transects) and click “yes” or “no” every x number of feet

Pro:

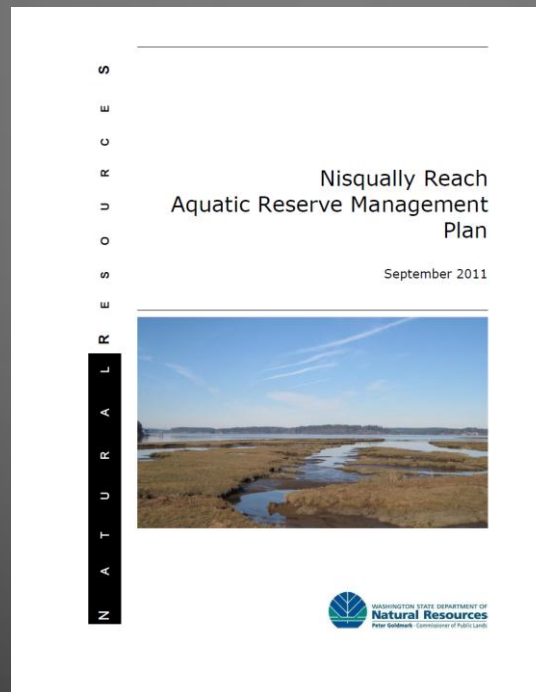
- Key ecological feature
- Baseline not known
- Reserve conservation target
- Can use protocol developed by NW Straits Commission

Challenges:

- Need motor boat with A-frame
- Need to borrow camera and computer with specialized software
- Takes hours (you go slowly)



Counting/Assessment projects



INTERTIDAL BIOTIC COMMUNITY SAMPLING

What: Conduct intertidal biotic sampling by establishing a fixed plot at specific locations (and come back and do the sampling several times a year) looking at beach slope, substrate (sand, gravel, etc), and biodiversity

Pro:

- Key ecological feature
- Baseline not known
- Can model program by Island County Beach Watchers/MRC
- DNR staff would train us

Challenges:

- Needs training
- Very minimal equip needs



PLASTICS SAMPLING: BEACHES & WATER COLUMN

What: Sample beaches and/or the water column for plastics

Pro:

- Known pollutant in Puget Sound, not yet assessed in this area
- Fits into bigger Puget Sound study by Port Townsend Marine Science Center and/or UW Tacoma
- Strong volunteer protocol already developed

Challenges:

- Need microscopes
- For water column:
 - need to borrow nets
 - need motor boats



AUGMENT EXISTING BIRD COUNTS

What: Partner with Audubon to add new site for their Annual Puget Sound Seabird Survey (2 existing sites on Anderson Island) or with existing Refuge bird program

Pro:

- Key ecological feature
- Baseline partially known
- Birds are in major decline in Puget Sound
- Is a conservation target for reserve
- Is an add-on to existing projects
- Minimal equipment needs

Challenges:

- Need bird training



Pigeon Guillemot Breeding Survey

What: Guillemot Research Group

We are dedicated to the research, education and protection of the Pigeon Guillemot. Based on Whidbey Island in north Puget Sound, we actively monitor approximately 1,000 Pigeon Guillemots that gather into colonies to breed in our seaside bluffs. These entertaining and endearing black and white seabirds with fire-engine-red feet symbolize healthy coastal waters.

Pro:

- Assisting an ongoing project QUAPP should be in place.
- Minimal equipment needed

Challenges:

- Need training



SET UP WEATHER AND/OR WATER STATIONS: CLIMATE CHANGE

What: Monitor the potential impacts from climate change by setting up a weather station and/or water (Temperature) station (off dock) to collect data

Pro:

- Fills in data gaps (existing stations are sparse)
- Helps with climate change research (an emerging field of study)

Weather Equipment: light intensity, temperature, pressure, wind speed, precipitation etc.

Water: \$80 device that logs the T every 15 minutes and you download to computer

Challenges:

- Need to buy stations (can buy in bulk to save money), therefore would need to do some fundraising
- Data management (software) – would need to set up a way to manage data



AUGMENT FORAGE FISH SPAWNING SURVEYS ON BEACHES

What: Conduct forage fish spawning surveys on beaches in coordination with the Puget Sound Corp, WDFW and WSU Beach Watchers

Pro:

- Key ecological feature
- Part of bigger Puget Sound study
- Is a Puget Sound target and a Reserve conservation target
- Puget Sound Corps will lead
- Adding on to an existing effort, therefore easy



Challenges:

- Training
- Coordination, if we want to add more sites
- Once a month

AUGMENTING FISH SEINING MONITORING

What: Expand existing fish monitoring project at shore edge to include additional locations or times of year (there are 8 existing sites)

Pro:

- Key ecological feature
- Part of bigger Puget Sound study
- Is a Puget Sound target and a Reserve conservation target
- Adding on to an existing effort, therefore easy

Challenges:

- Coordination, if we want to add more sites
- borrow equipment, or work with Puget Sound Corps



INVERTEBRATE FALLOUT TRAPPING

What: Coordinate with current Nature Center projects to expand current locations/ data sets of invertebrate fall-out trapping (which compares invertebrate in smaller pocket estuaries, natural shorelines, bulk head shorelines, and larger estuaries re: juvenile salmon food) using tray of soapy water.

Pro:

- Key ecological feature
- Baseline partially known
- Is a Puget Sound target and a Reserve conservation target
- Add on to existing study

Challenges:

- Minimal training and equipment
- Time to do sorting (8 hours per sample)

COASST DEAD BIRD SURVEY

What: Monitor a beach once a month for dead sea birds. Survey locations near/in reserve are at Luhr Beach and Tolmie Park. Possible island location?

Pro:

- Key ecological feature
- Baseline not known
- Fits into bigger WA State study
- Add on to COASST project
- Training on December 8 at NNWR.

Challenges:

- Access to beach tides in winter.



WATER QUALITY SAMPLING

What: With Sound Citizen, sample for water quality

Pro:

- Fits into bigger Puget Sound study
- Add on to existing study

Challenges:

- Funding!
- They may be phasing out.



VISITOR USE SURVEY

What: Conduct visitor use surveys at public access sites (all around the reserve) to find out “who was launching from this boat launch and who and what they are doing”

Pro:

- Baseline not known
- Is already being done – this can be an add-on
- Valuable for the Refuge's and Reserve's management
- Very easy (least amount of training/equipment needed)



Challenges:

- Need minimal equipment

What: WDFW Water Quality Monitoring with Mussels from Pen Cove.

Pro: We are already starting this project by request.

WASHINGTON STATE
MUSSEL WATCH PILOT EXPANSION



Deployment & Retrieval Protocol
October 20, 2012



SUPPORT SHELLFISH AQUACULTURE RESEARCH BY DOING TEST PLOT

What: Set up a test plot north of Amsterdam Bay to look at impacts from geoduck aquaculture

Pro:

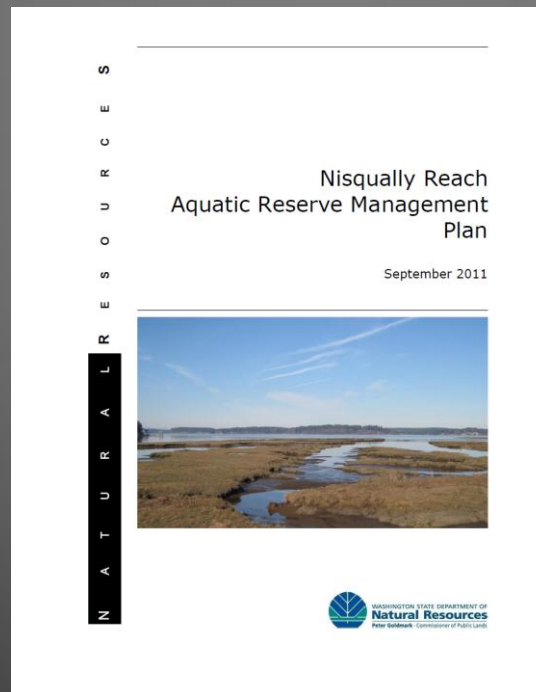
- There is much pressure for aquaculture and some science is missing
- Would fill a gap for Puget Sound research



Challenges:

- Partnering with UW and Industry – much logistics and potential controversy
- Might not get meaningful results by Dec 2013

Identified by DNR as lower priority



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- Identify (at the watershed scale) physical processes (feeder bluffs, spits)
 - Requires a professional (usually a consultant)
- Determine current status of shoreline geomorphic characteristics and potential shoreline related impacts.
 - Requires a professional (usually a consultant)
- Create an inventory data on identified resources of interest to the reserve (data repository)
 - DNR is already working on creating this database

Identified by DNR as lower priority

- Identify gaps in the collection of data identified above and organize inventory/survey efforts, collection standards to fill data gaps
 - Has to wait for DNR's database to be complete
- Identify native and sensitive habitat
 - United States Geological Survey is “typing” areas
 - Dive work (above) can supplement this
 - DNR is creating a google map
- Research and catalogue archeological, cultural and historical sites and uses located within the Reserve
 - Requires a professional (usually a consultant)

Identified by DNR as lower priority

- Conduct research to assess the cumulative impacts of chemicals of concerns in permitted outfalls within the Reserve
 - Requires a research lab (agency or university)
- Conduct a siting study for future moorage demand.
 - Requires a professional (usually a consultant)

Thank you!

